

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

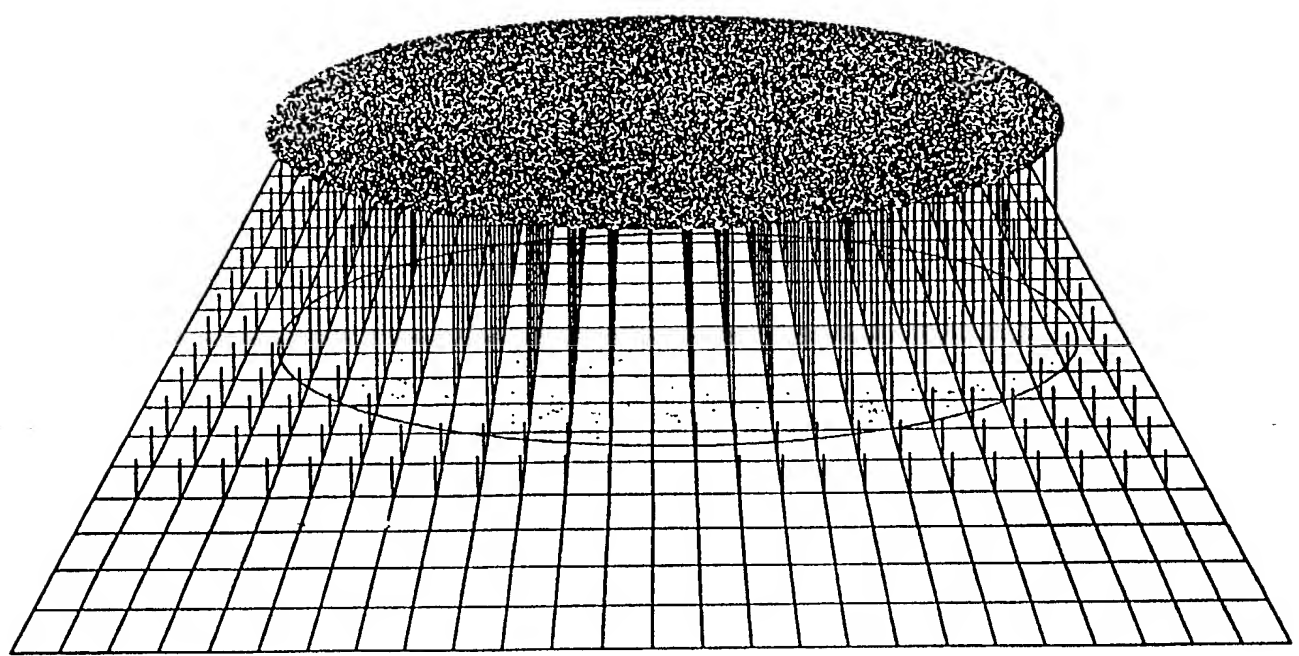


FIG. 1

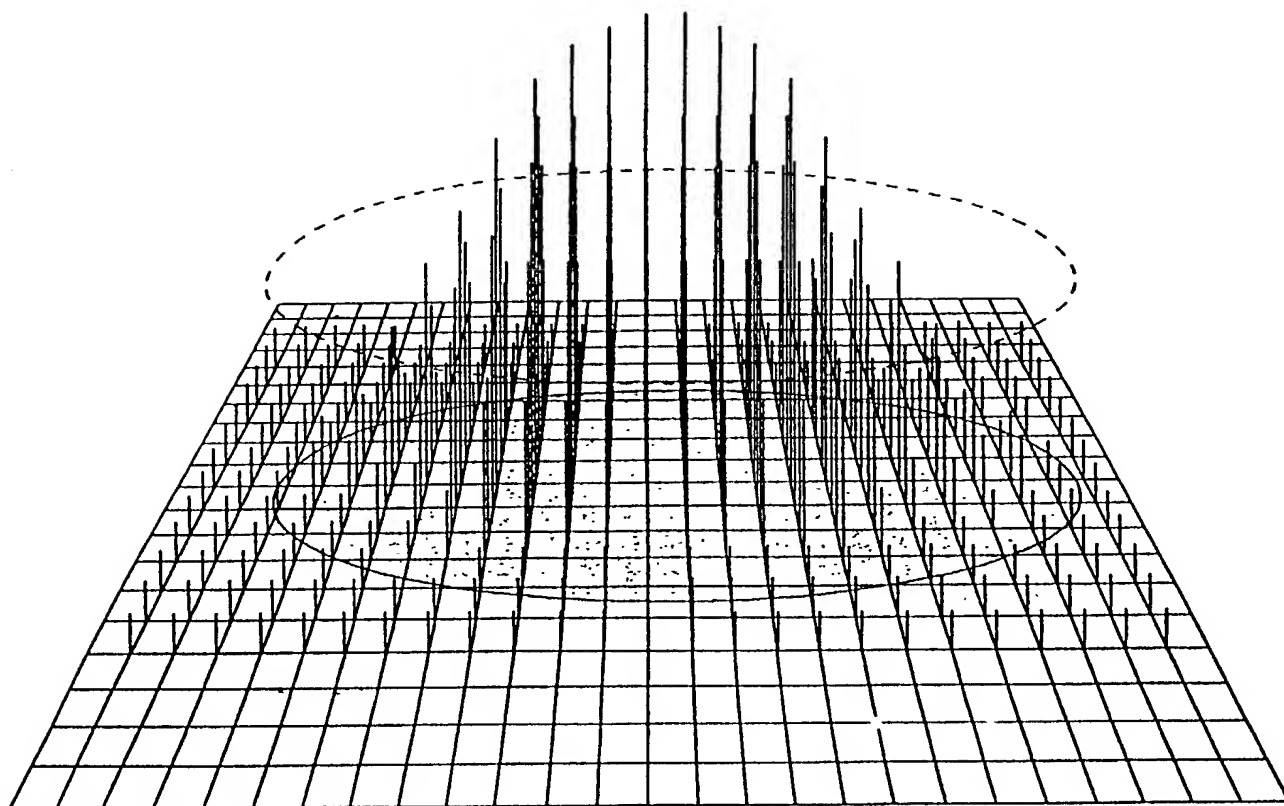


FIG. 2

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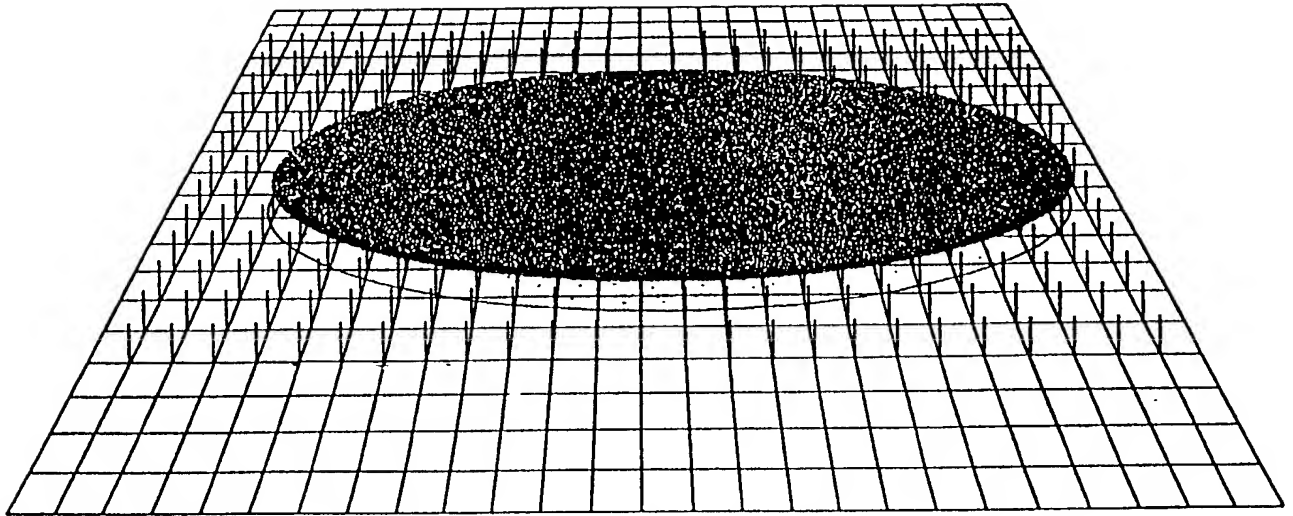


FIG. 4

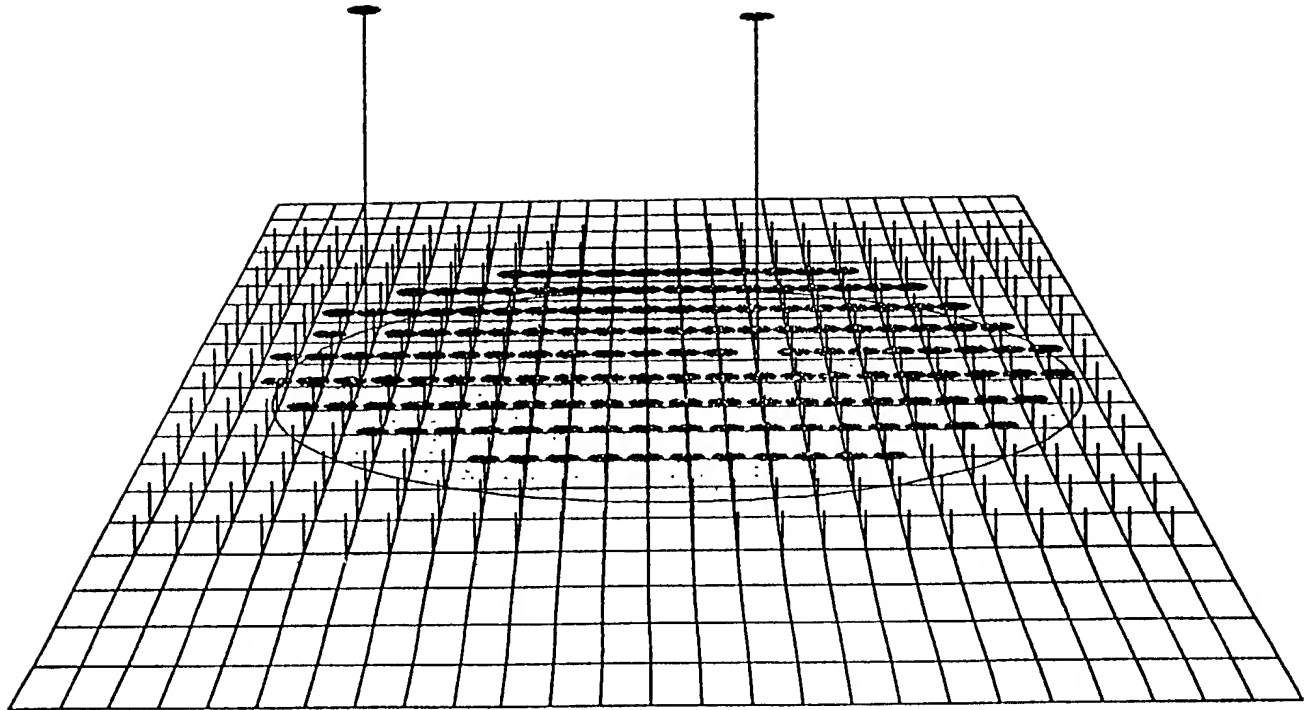


FIG. 5



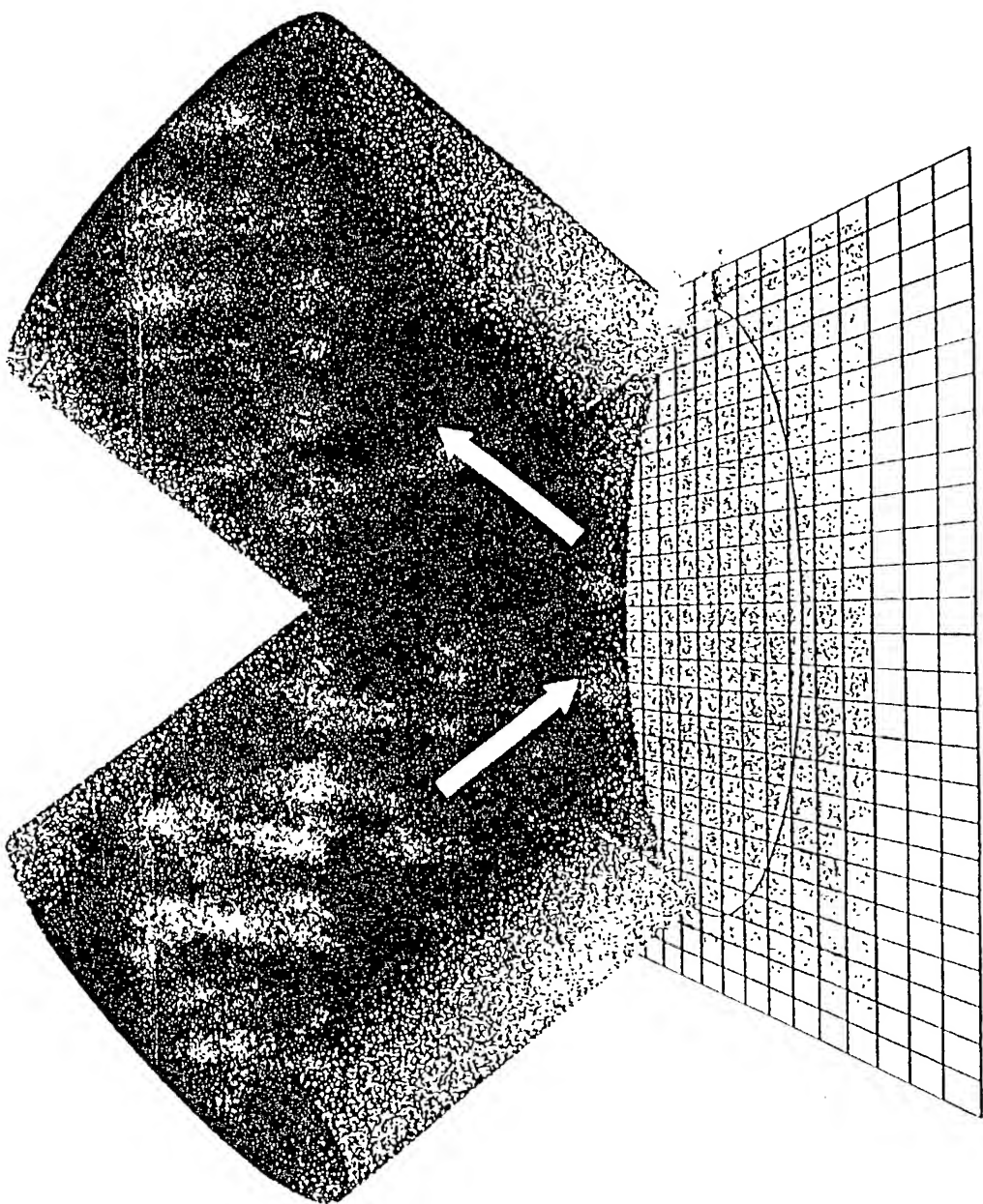


FIG. 7

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

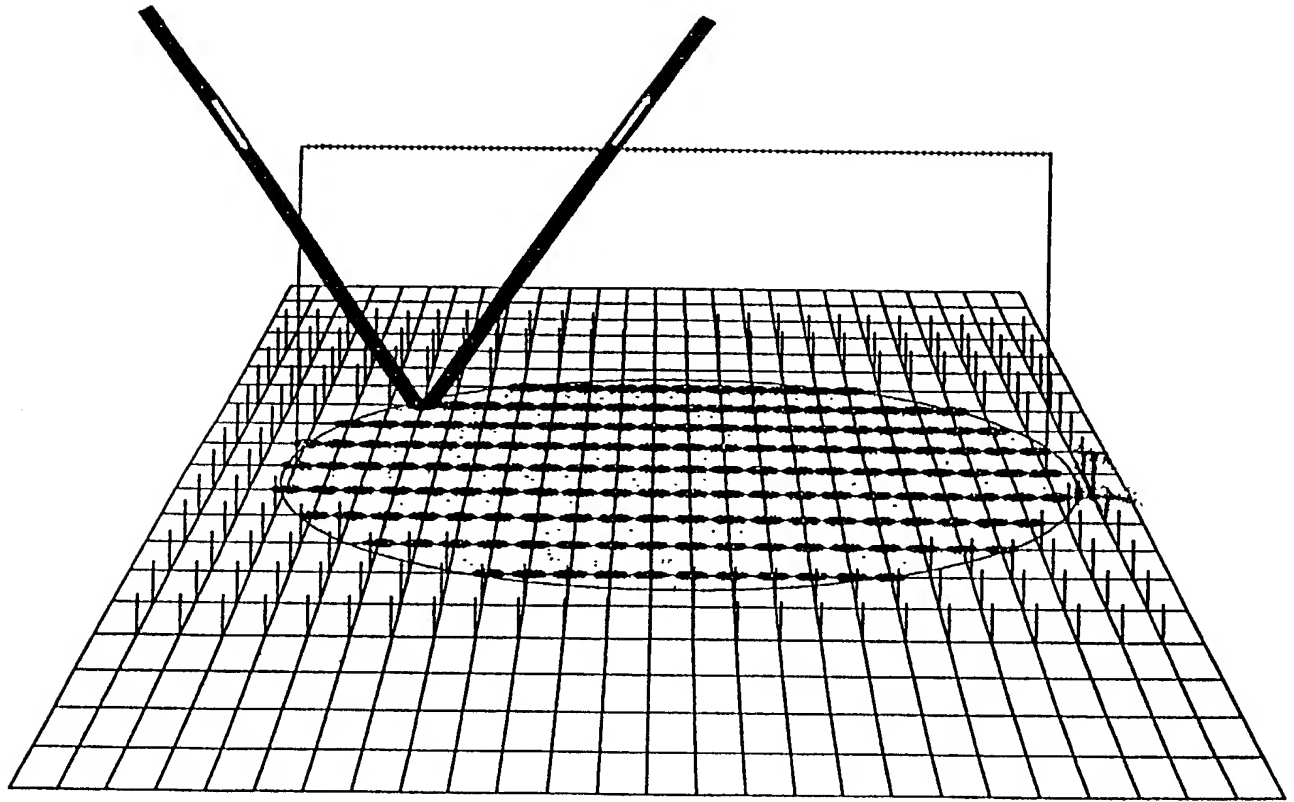




FIG. 9

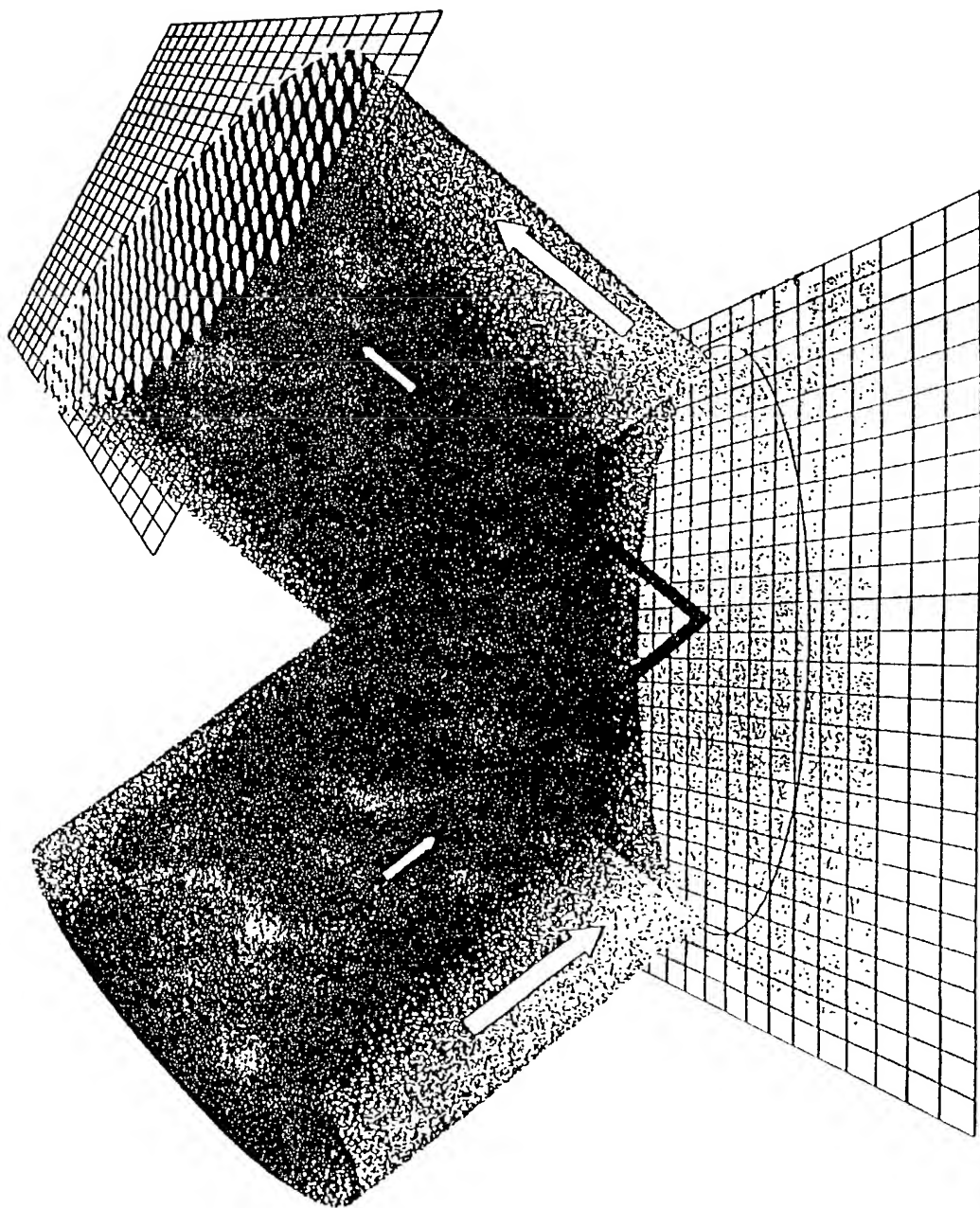


FIG. 10

FIG. 10 is a perspective view of a rectangular block with a grid pattern on its top and front faces. The block is divided into two main sections by a vertical plane. The left section is shaded with a dense stippled pattern, while the right section is lighter. Two white arrows point horizontally away from the center of the block, one on each side. A black arrow points vertically upwards from the center of the block. The top face of the block is a grid of squares, and the front face is a grid of squares. The block is shown in a perspective view, giving it a three-dimensional appearance.

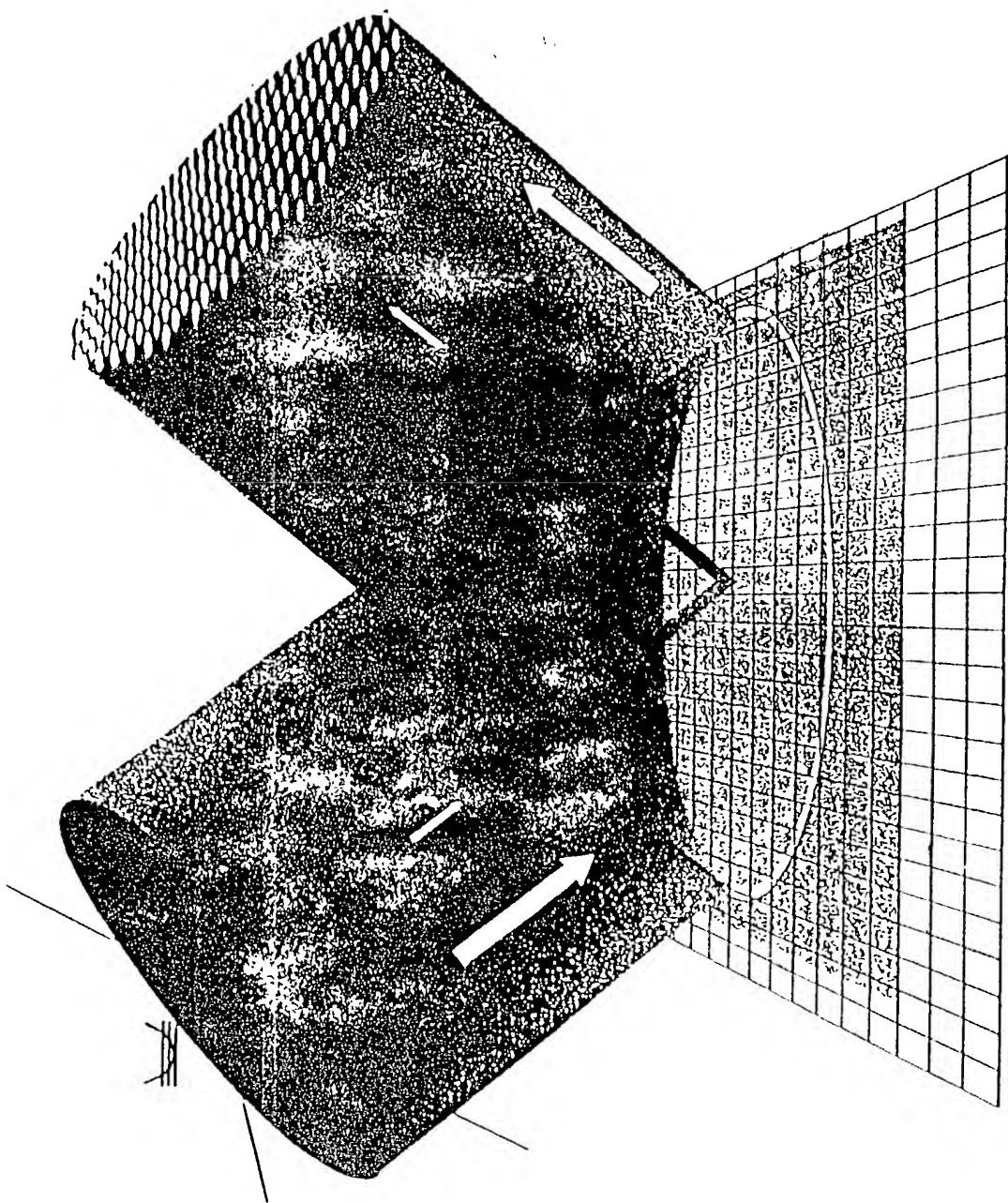


FIG. 11

FIG. 11 is a perspective view of a rectangular block 100, which is divided into two main sections by a vertical line 102. The left section 104 is shaded with a dense stippled pattern, while the right section 106 is lighter. White arrows 108 and 110 indicate flow or movement: arrow 108 points from the top surface of the left section towards the right, and arrow 110 points from the top surface of the right section towards the left. A third arrow 112 points from the side surface of the right section towards the left. The top surface of the right section 106 is marked with a grid pattern 114. The side surface of the right section 106 is also marked with a grid pattern 116. The bottom surface of the block 100 is marked with a grid pattern 118. The entire diagram is rendered in a 3D perspective view.

## Examples of Optical Signal Formats

Principle	Label Type	Instrument	DDx Status
Scatter	polymer beads/particles	scatterometry	demonstrated
	silica beads /particles		
	magnetic beads/particles		
	metal beads/particles		
	metal coated beads/particles		
Optical absorption	colloidal gold	reflectometry	scheduled
	magnetic beads	photometry	
Change in polarization state	polymer beads	ellipsometry (with compensator)	scheduled
	silica beads	polarimetry (wout compensator)	
Change in refractive index	high refractive index or optically active materials	ellipsometry (with compensator)	scheduled
		polarimetry (wout compensator)	
Chiral effects	azio dyes		envisioned
	chiral compounds		
Diffraction effects	patterned surface	interferometry	envisioned
Spectroscopic effects	wavelength selective materials	spectrometer	envisioned

FIG. 12

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

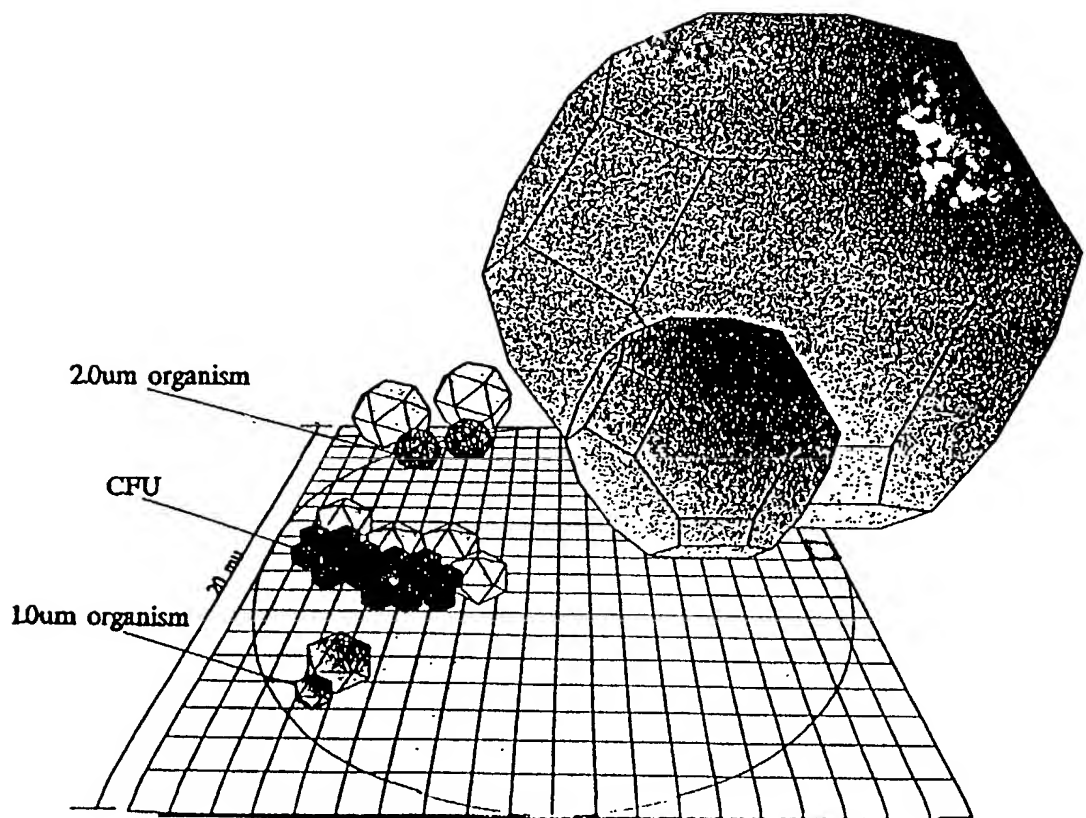


FIG. 14

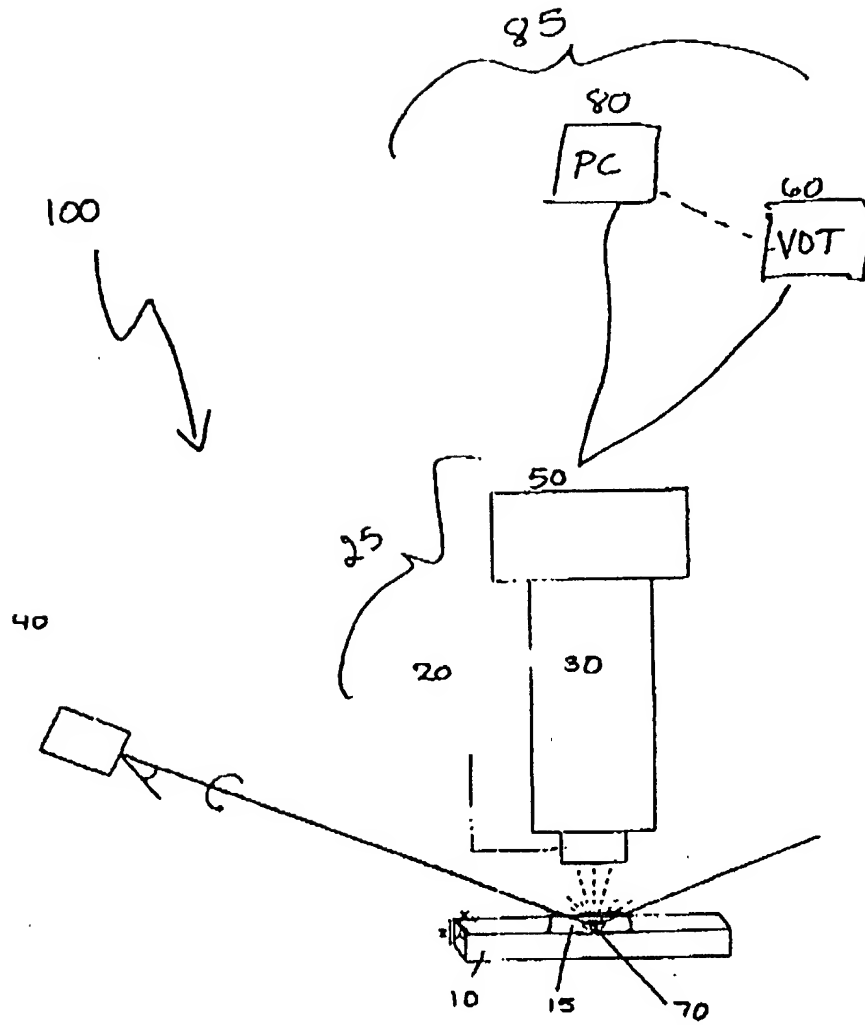


FIG. 15

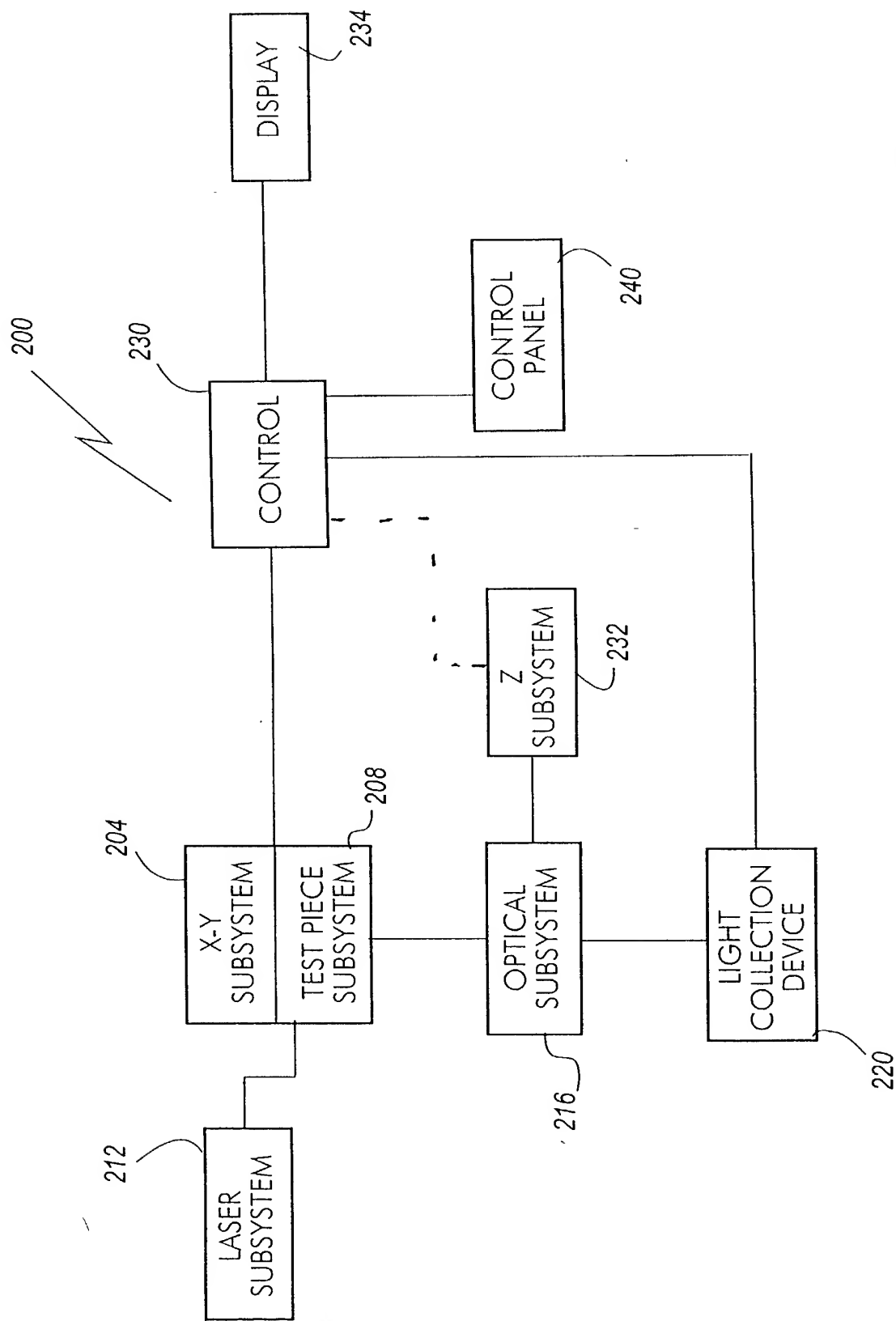


FIG. 16

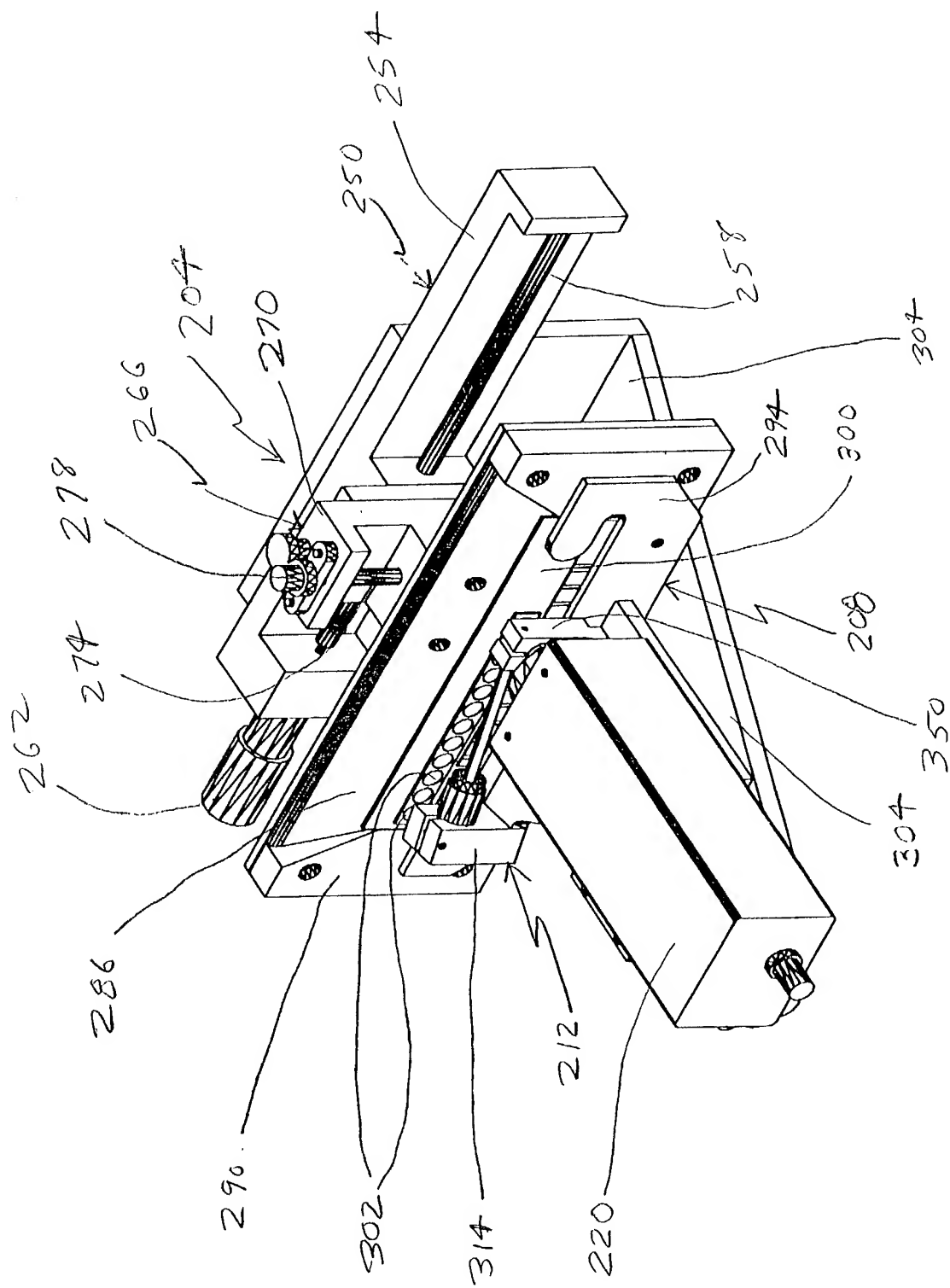


FIG. 17



FIG. 18 is a perspective view of the assembly 200 showing the components 204, 208, 212, 220, 232, 282, 286, 290, 294, 304, 310, 314, 318, 322, 326, 334, 340, 360, 364, and 368.

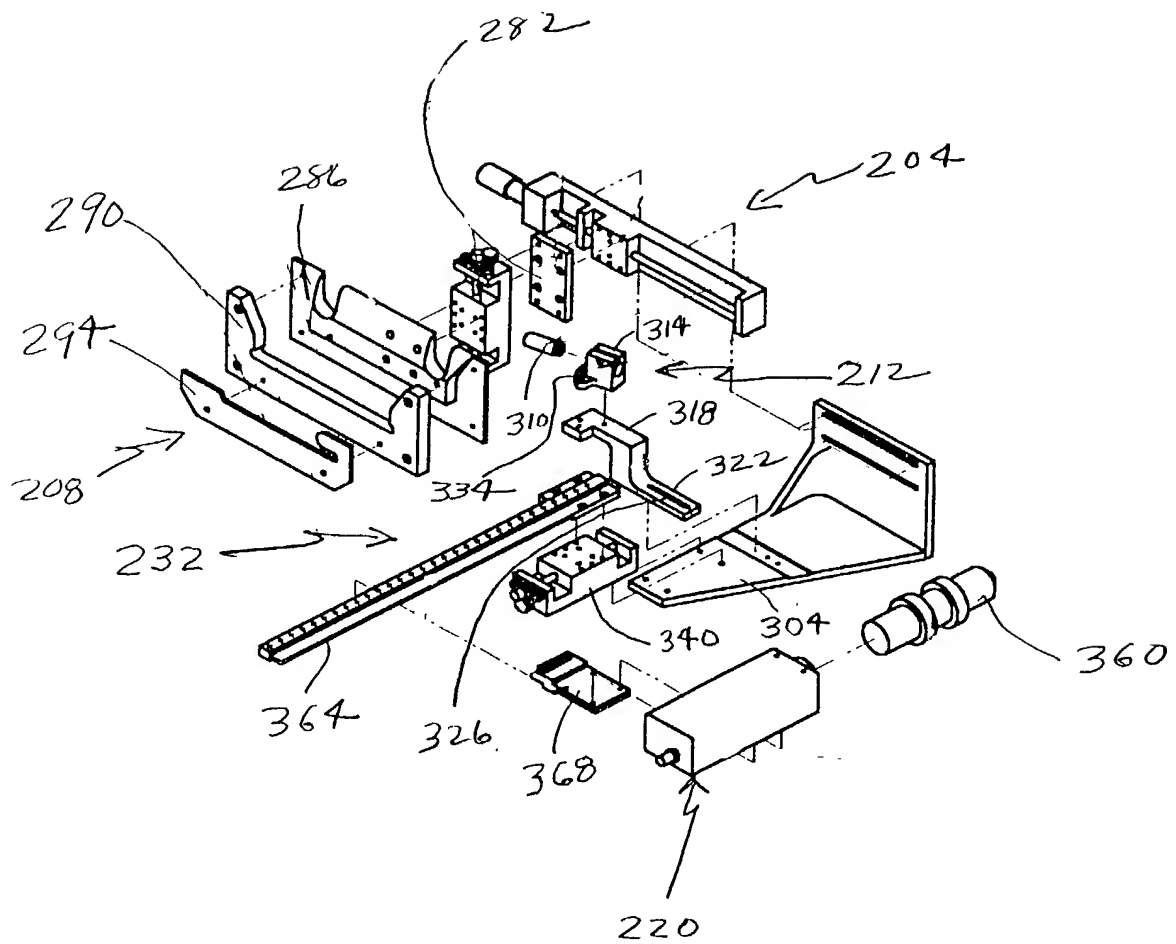


FIG. 18

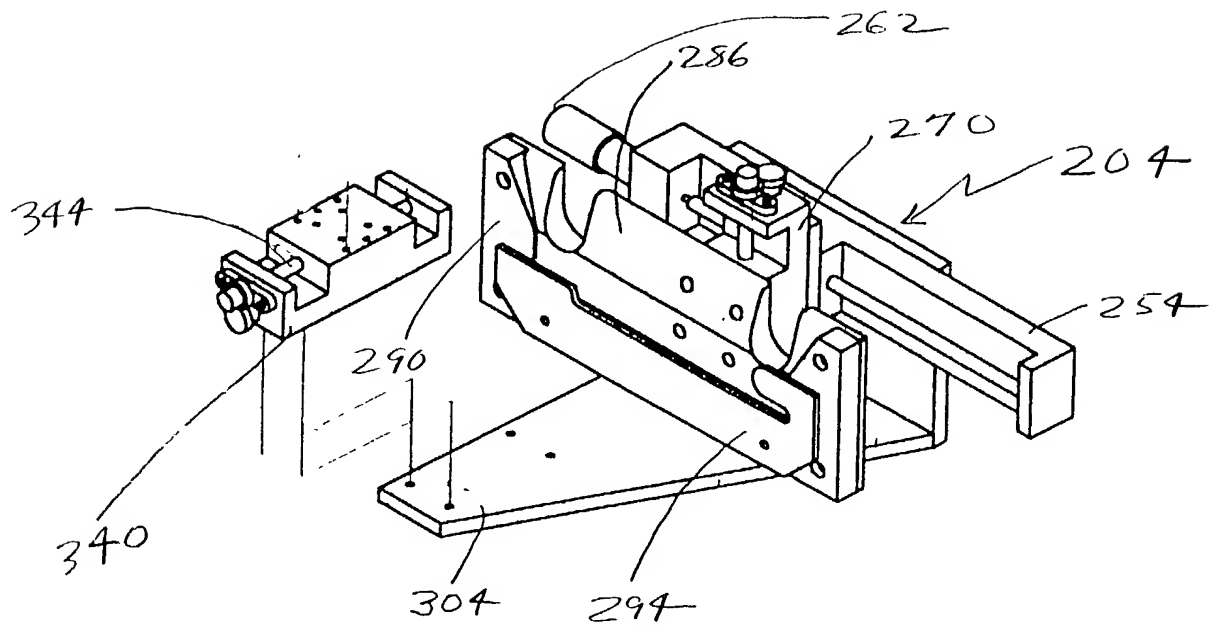


FIG. 19

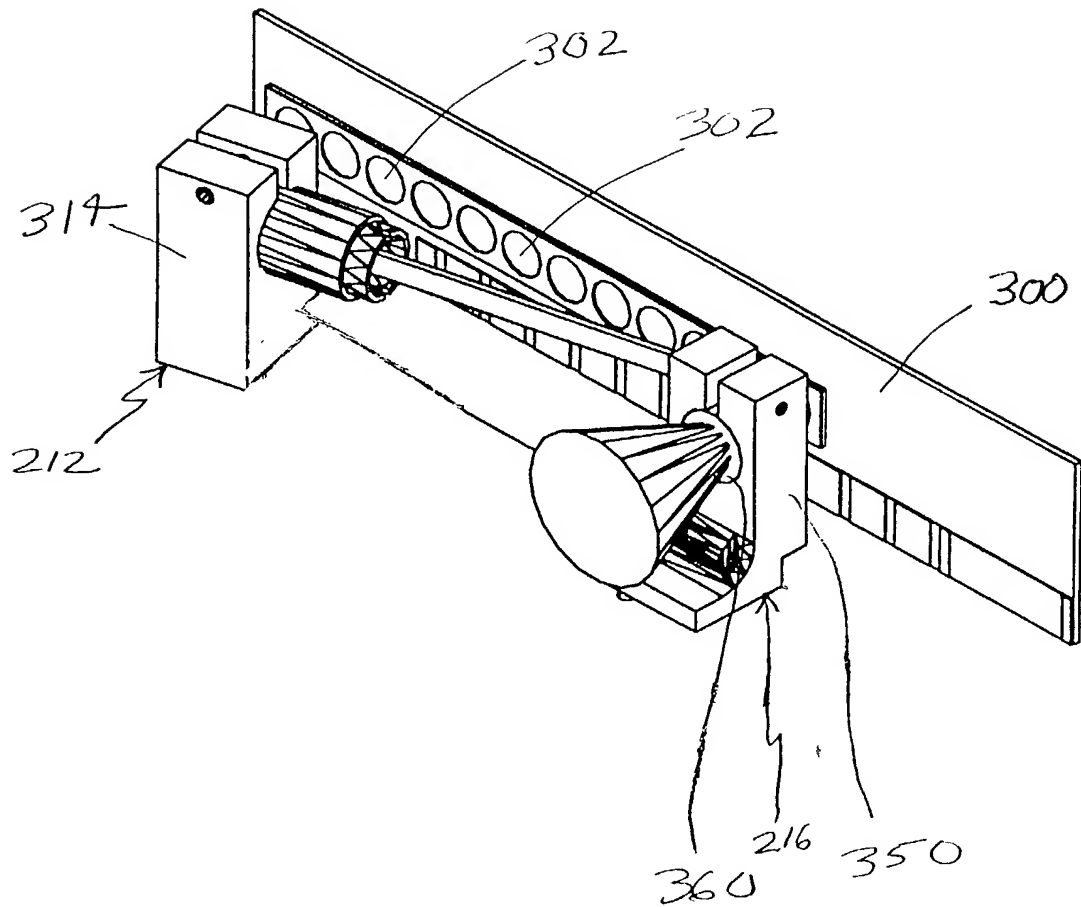


FIG. 20

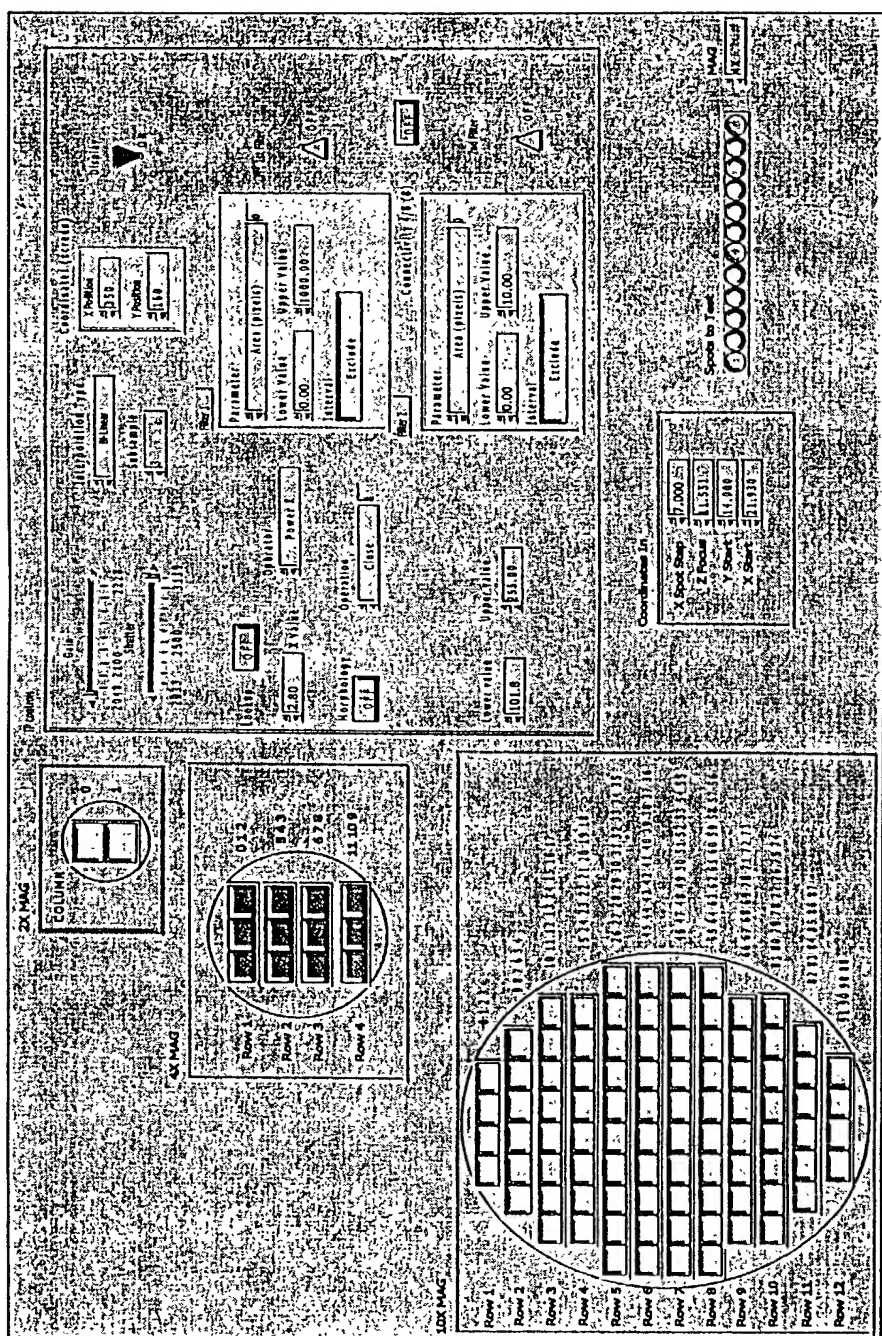


FIG. 21

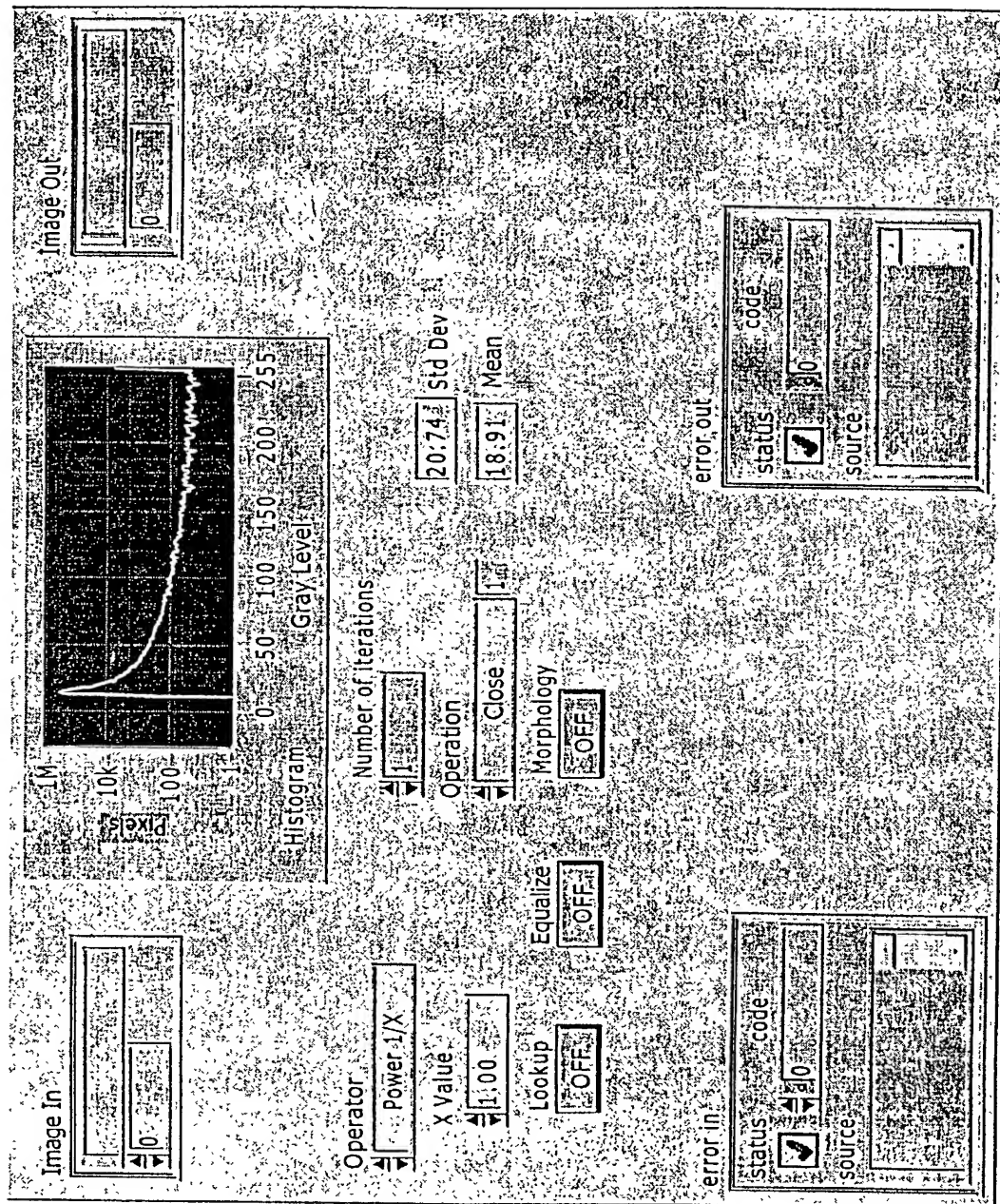


FIG. 22

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

INSTRUMENT SETUP

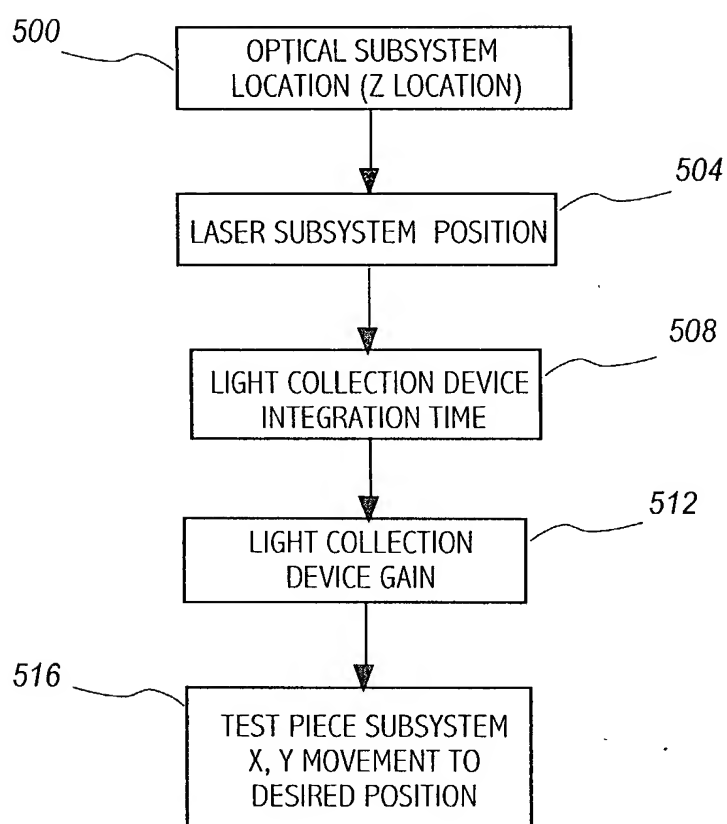


FIG. 23

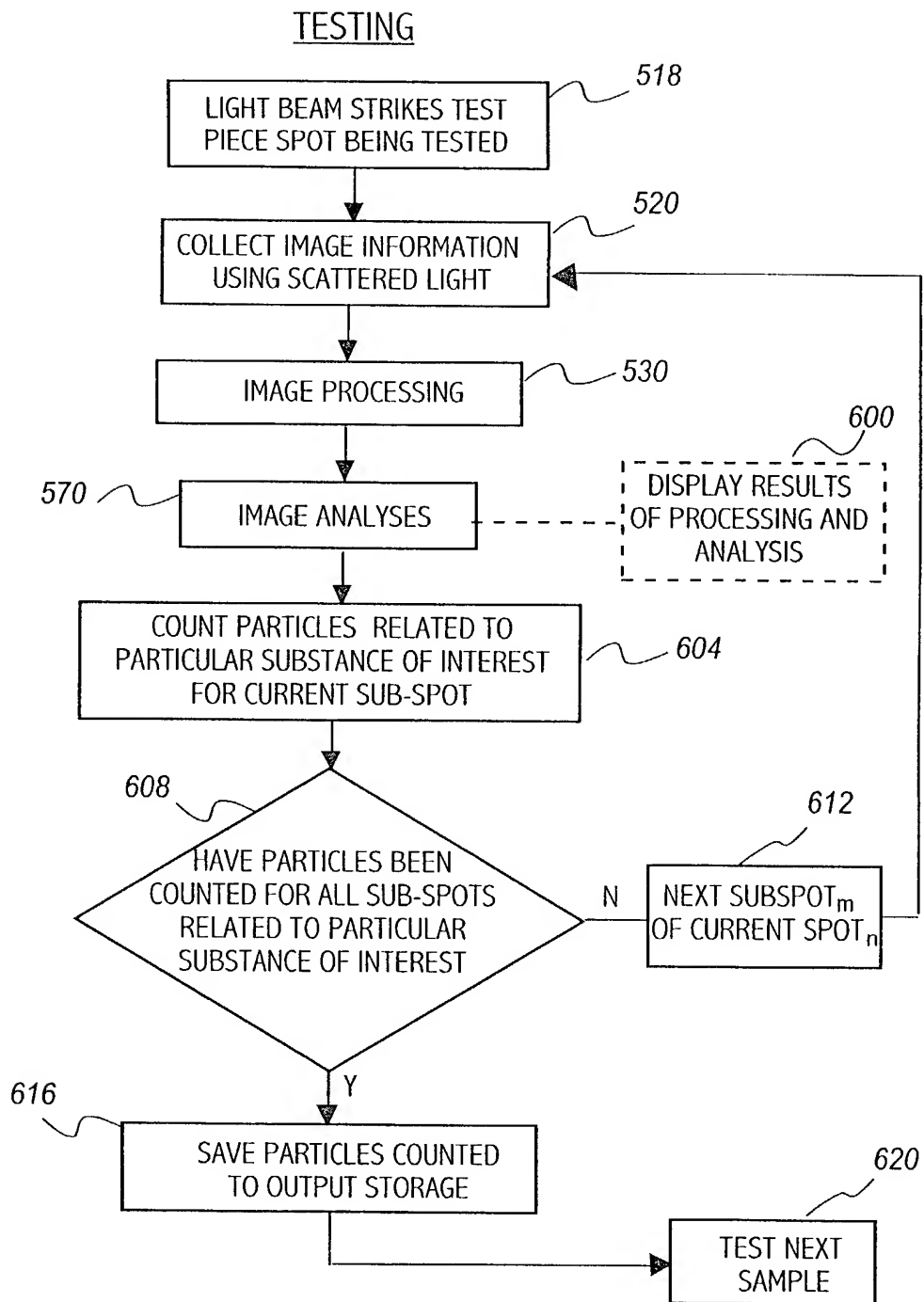


FIG. 24

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... ..  
... ..

## IMAGE PROCESSING

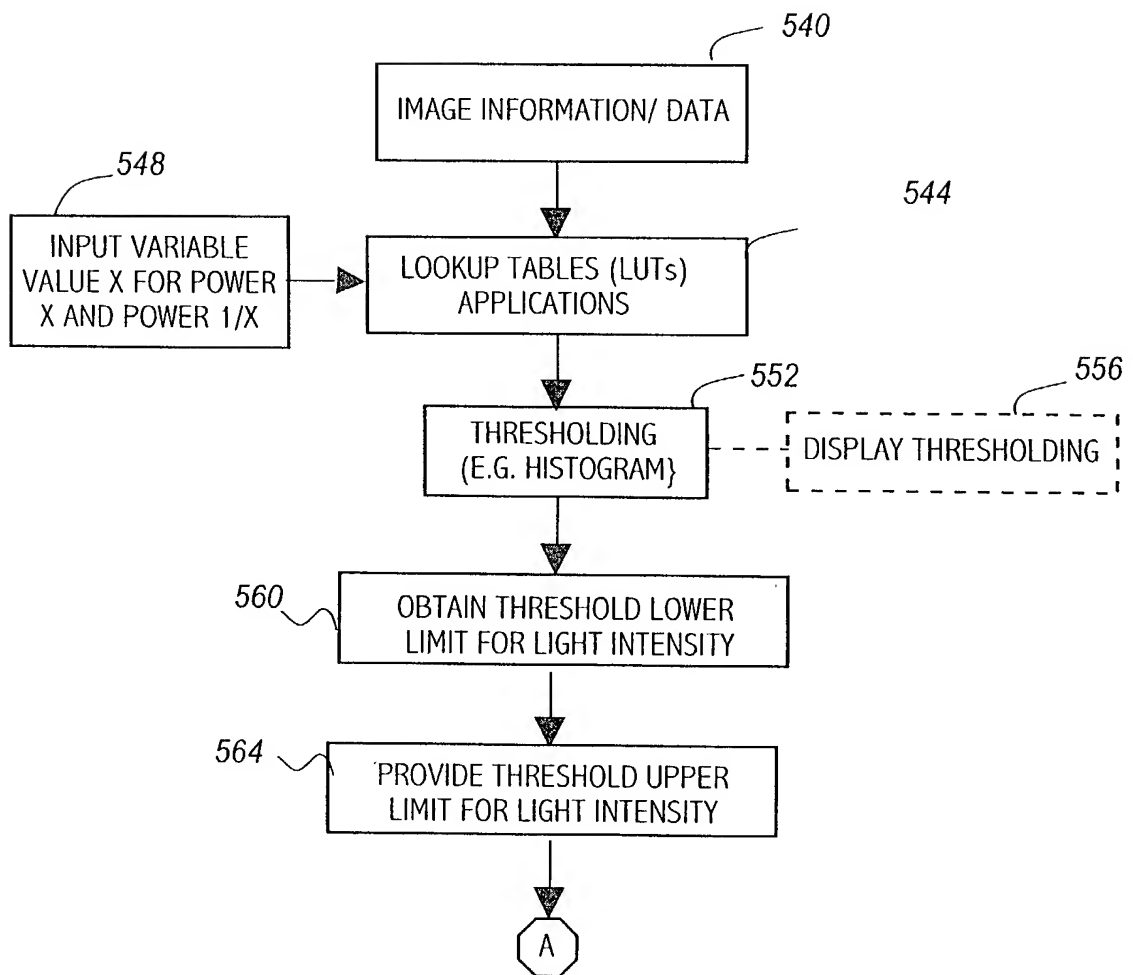


FIG. 25



10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

## IMAGE ANALYSIS

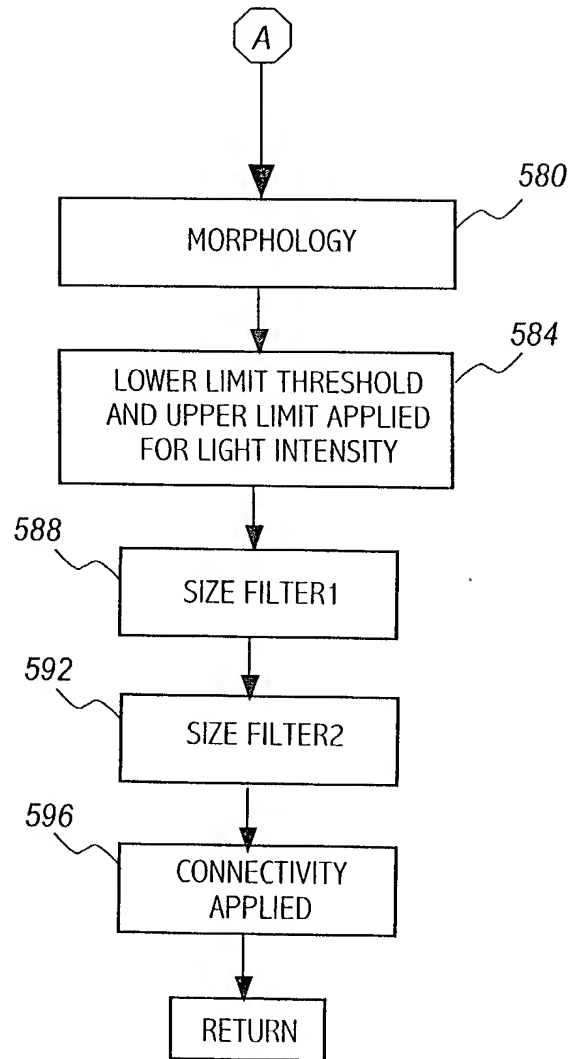


FIG. 26